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Extending the Online Catalog

Future plans of the California Institute of Technology Libraries (Brudwig, 1984) include an online analytic catalog of books, serials, journals, and technical reports. In an attempt to avoid the observation of Mandel and Herschman (1983) that "new technologies are often adapted to traditional uses without exploiting added capabilities" (p. 148), a number of innovative cataloging approaches are being developed. Encouraged by the work of Petersen (1983), Cochrane (1978), Hoffman and Magner (1985), and Quint (1987), staff members are developing procedures to augment the basic MARC records available through OCLC.

One of the serious drawbacks of currently available MARC records is that they generally describe physical items while many library users are interested in retrieving intellectual works or specific data (the contents of the items). This is particularly troublesome in science and engineering libraries where serials and journals are the primary data source and are much more likely to be consulted than read cover to cover. Striking examples of this dichotomy include: (1) a student looking for Mulay's work on "Analytical Applications of Magnetic Susceptibility" that was published as a chapter in the *Treatise on Analytical Chemistry;* (2) a faculty member looking for vapor pressure-temperature curves for a series of hydrocarbons that can be found in Landolt-Börnstein; or (3) a postdoctoral research fellow looking for a recent review article on "Electronic Processes in Thin Films and Novel Conductors" that appeared as a chapter in *Annual Reports on the Progress of Chemistry.*

These examples are, unfortunately, only indicative of a much greater problem. Science and engineering libraries are becoming progressively much more difficult to use due to: (1) the dramatic increase in publication of multiple works in volumes that continue to be cataloged as individual items, and (2) the need to use various databases to access information in serial and journal articles and technical reports.

For example, a number of comprehensive reference items are, in a very real sense, a collection of individual monographs (i.e., each chapter has a monographic character). Some examples include Landolt-Börnstein, *Treatise on Analytical Chemistry* and *Advances in Physical Organic Chemistry*. Unfortunately the *Anglo-American Cataloguing Rules* do not easily provide for added entries for chapters even when they have distinctive authors and titles or when they have been reprinted as monographs. Thus there is the dilemma of cataloging what amounts to monographic sets under the set title while users are searching for information that can be found only under the "monograph" (chapter) title (see Figure 1).

Another area of concern is retrieval of information in journal articles which is most easily accomplished by locating a relevant review article and some recent references. Users requiring access to very recent information, however, are usually stymied by the normal four to eight months gap between the most recent journal issues on the shelf and coverage in an online database. A partial solution is to download citations to articles in a library's journals from the *Science Citation Index* (source index) database to narrow the gap (see Figure 2). Deleting or backfiling these online records as each issue of the printed *Science Citation Index* is received will offer the opportunity of maintaining a relatively static file and avoid overwhelming the user with information better presented in review articles or books.

CHEMICAL EQUILIBRIUM AND THE THERMODYNAMICS OF REACTIONS.
LEE, T.S.
BOOK CHAPTER
TREATISE ON ANALYTICAL CHEMISTRY; Pt. 1, V. 1, pp. 185-275.
REF 543 KO pt. 1, v. 1, pp. 185-275.

Figure 1. Sample analytic entry for book chapters

CATALYSIS BY HUMAN LEUKOCYTE ELASTASE.
STEIN, R. L.
JOURNAL ARTICLE
BIOCHEMISTRY 1987, 26, 1305-1314

Figure 2. Sample entry for journal articles

Online searching through a database vendor is another solution. However, given the relatively large number of users who prefer to "do it themselves" and the fact that index-mediated retrieval is not equivalent in efficiency and usefulness to immediate retrieval via the library's catalog (Hoffman, 1981), an approach integrated into the library's online catalog would seem mandatory. As an aside, unless one has a database such as MEDLINE that is continually being restructured to reflect changes in terminology, printed indexing/abstracting publications are a necessity. In general, end user online searching remains, at best, a quick and dirty approach that if used extensively could easily exceed the annual cost of the printed counterparts. At worst, because of the inherent inefficiency of inexperienced searchers, it could have an adverse effect on the quality of research performed.

Another problem area involves publishers who are using journal issues for publishing an increasing number of conference proceedings and collections of review articles that, in the past, would have been published as monographs. Reviewing each issue as it is checked in identifies items requiring analytic entries (see Figure 3).

Access to individual technical reports is another concern since these are not generally represented in library catalogs because many are, in essence, journal articles and are abstracted and indexed in detail in the NTIS or NASA RECON databases. There are, however, a significant

INTERNATIONAL CONFERENCE ON CRYSTAL GROWTH (8th: 1986: YORK)
CRYSTAL GROWTH 1986: proceedings

JOURNAL ISSUE

Cockayne, B.
Journal of Crystal Growth; v. 79, nos. 1-3

Figure 3. Sample analytic entry for conference proceedings in a journal issue

Gasification of refuse derived fuel in a paired fluidized bed pyrolysis unit.
JONES, R. L.

TECHNICAL REPORT

NBS special publication; 664

Figure 4. Sample brief record for technical reports

number of monographic reports that deserve individual cataloging and, again, the time lag between publication of a report and its retrieval from an online database suggests that a procedure analogous to the one described for journal articles be adopted for selected items (see Figure 4).

At first glance, the costs associated with an analytic catalog would seem prohibitively expensive. However, just as MARC tapes are supplemented by input from member libraries to create the OCLC database, WORK-MARC records (Hoffman, 1981) could be created by member libraries and linked to the existing ITEM-MARC records. Thus, at a cost little more than what is being currently spent on shared cataloging, libraries could usher in a whole new age of information retrieval.

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